

DETAILED OFFICE ACTION

As set forth in the Pre-Brief Appeal Conference Decision, mailed 03/22/2011

Claims 1-19 and 36-40 are pending.

Claims 20-35 are cancelled.

Claims 6, 8, 9, and 12-14 are withdrawn from consideration as being directed to non-elected species of the claimed invention.

Claims 1-5, 7, 10, 11, 15-19, and 36-40 are currently under examination.

Withdrawal of Claim Rejections

The rejection of claims 1-5, 7, 10, 11, 15-19, and 36-40 under 35 USC 101 because the claimed invention lacks utility is withdrawn in view of arguments presented by applicants as well as in view of the newly presented rejections set forth below.

The rejection of 1-5, 7, 10, 11, 15-19, and 36-40 under 35 USC 112, 1st paragraph is also withdrawn in view of the withdrawal of the above rejection under 35 USC 101.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-5, 7, 10, 11, 15-19, and 36-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Dependent claims 2-5, 7, 10, 11, 15-19, and 36-38 recites a plurality of alternative embodiments comprising inherent sample and experimental properties, sample selection, and image evaluation. However, the additional limitation appear tangential to the subject matter set forth in independent claim 1, from which claims 2-5, 7, 10, 11, 15-19, and 36-38 ultimately depend, such that it cannot be determined what additional steps or acts are required in addition to those already recited in claim 1. 35 USC 112, 4th paragraph requires that dependent claims shall contain a reference to a claim previously set forth and *then specify a further limitation of the subject matter claimed* (emphasis added). While dependent claims 2-5, 7, 10, 11, 15-19, and 36-38 do refer, ultimately, to dependent claim 1, they do not recite any limitation which appears to meaningfully modify any of the recited process steps set forth in independent claim 1, nor do they require any additional acts than those already set forth in said independent claim. Therefore, the metes and bounds of dependent claims 2-5, 7, 10, 11, 15-19, and 36-38 are indefinite for failing to specify what, if any, modifications are made to the process steps set forth in independent claim 1 and, further fail to delineate the

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difference in scope between said dependent claims and the parent claim from which they depend.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 11, 15-19, and 36-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Collin et al. (Nucleic Acids Research (2000) in light of Evens (Biomolecular NMR Spectroscopy, Oxford Press, 1995) and Piotto et al. (Journal of Biomolecular NMR, 1992). This rejection is newly applied.

The recited process comprises the steps of introducing into an examination area magnetic particles in a first state or a second state, wherein at least some of the magnetic particles that are to be examined are agglomerated and/or coupled to one another in the first state and deagglomerated and/or decoupled in the second state. Further, dependent claims comprise the recitation of inherent sample properties and inherent features to the NMR spectroscopic investigation.

Collin et al. teaches the application of NMR experiments applied to samples of isotopically labeled DNA and RNA at 1 mM concentrations recorded on a Bruker DRX-600 spectrometer and a Bruker DRX-800 spectrometer equipped with triple resonance,

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three-axis gradient probes. See Collin et al. page 3386, col. 2, line 35 through page 3387, col. 1., line 5.

Evans et al. is relied upon for support that the natural abundance of ^1H nucleic and isotopically enriched ^{15}N in the 1 mM concentration samples of isotopically labeled DNA and RNA, as taught by Collin et al., are magnetic particles. Specifically ^1H and ^{15}N nuclei are have a nuclear magnetic "spin" of $\frac{1}{2}$ and can exist in one of two quantum states, denoted as "up" and "down", with respect to large external magnetic field. See Evans et al., section 1.1 Basic Theory of NMR, pages 5-9 and Table 1.2.

The recited process further comprises generating a magnetic field having a field strength with a gradient profile, such that there is a produced in the examination area two part areas including a first part-area having low magnetic field and a second part area having a higher magnetic field strength. The recited process further comprises changing spatial positions of the two part areas or changing the magnetic field strength in the first part area to cause the change in the spatial distribution of magnetic particles so that magnetization of the particles is locally changed.

Collin et al. teaches the use of three-axis gradient probes and the application of NMR experiments involving the use of transverse gradients. See Collin et al., page 3386, col. 2, line 35 through page 3387, col. 1., line 32.

Piotto et al. is further relied upon for support that the WATERGATE pulse program procedure as applied and taught in Collin et al. comprises the application of magnetic field gradient pulse applied across the entirety of a sample under investigation. See Piotto et al., Abstract, page 662 in it's entirety, and Figure 1. The

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application of a field-gradient pulse introducing a magnetic field across the sample varies as a function of sample position, and therefore meets the recited limitation of a first and second area of differing magnetic field intensity.

The recited process further comprises detecting signals that depend on the magnetization in the examination area that is influenced by the changing act. The recited process further comprises evaluating signals so as to obtain information about the change in the spatial distribution of the magnetic particles and about physical, chemical, and/or biological state variables that include at least one substance concentration, temperature, pressure, viscosity, and pH, to which the change is correlated.

Collin et al. teaches the use of a 2D ^1H - ^{15}N HSQC experiment that involves detecting the magnetization properties of a concentrated nucleic acid sample in the form of a Free Induction Decay (FID) (see also Evans et al., page 11 and Figure 1.12). See Collin et al., page 3387, col. 1, lines 13-32. Collin et al. further teaches the evaluation of the collected data. See Collin et al., page 3387, col. 1, lines 20 and 21. Figure 1 is further relied upon to demonstrate that the information determined from the described NMR experiments involves and is directly correlated to sample concentration and pH dependencies.

Response to Arguments

Applicant's arguments with respect to claims 1-5, 7, 11, 15-19, and 36-40 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC S. DEJONG whose telephone number is (571)272-6099. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on (571) 272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ERIC S DEJONG/
Primary Examiner, Art Unit 1631